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ABSTRACT

The independent reading behavior of 150 achieving fifth graders was investigated. Attention was directed toward the quality and variety of choice as well as to the number of books read. These variables were intercorrelated with standardized achievement tests, IQ, and a number of noncognitive and demographic variables. Indices of quantity, variety, and quality were derived from (1) records of library usage, (2) the child's own record of books read, and (3) time records of out-of-school activities. Correspondence across data sources supported validity. Significant findings suggested that (1) quantity of reading was related positively to reading efficiency, intelligence, socioeconomic class, and attitude toward reading, (2) avid readers were characterized by distinctive personality patterns which were different for boys and girls, (3) variety of reading increased as a function of quantity, and (4) quality of reading was negatively related to quantity, efficiency, IQ, and reading attitude. It was concluded that efficient readers do not necessarily attain the broad pattern of reading maturity as conceptualized by Gray and Rogers, and that standardized tests are an inadequate measure of the quality and variety of independent reading. Tables and a bibliography are included. (Author/WB)

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A STUDY OF THE INDEPENDENT READING OF ACHIEVING FIFTH GRADERS

Project No. 8-B-026

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1970

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Use this abstract

Abstract

This study undertook to extend the concept of reading achievement through an investigation of independent reading behavior. Attention was directed toward the quality and variety of choice as well as to the number of books read. These variables were intercorrelated with standardized achievement tests, IQ, and a number of non-cognitive and demographic variables.

For 150 achieving fifth-graders (a) records of library usage, (b) the child's own record of books read, and (c) time records of out-of-school activities were the basic data from which indicies of quantity, variety and quality were derived. For each of these three, correspondence across data sources supported validity.

Significant findings in relation to quantity, variety and quality of reading suggested that (a) quantity of reading was related positively to reading efficiency, intelligence, socioeconomic class and attitude toward reading, (b) avid readers were characterized by distinctive personality patterns which were different for boys and girls, (c) variety of reading increased as a function of quantity, (d) quality of reading, particularly for the boys, was negatively related to quantity, efficiency, IQ, and reading attitude.

It was concluded that efficient readers do not necessarily attain the broad pattern of reading maturity as conceptualized by Gray and Rogers, and that standardized tests are an inadequate measure of the quality and variety of independent reading.

Problem

The child who reads avidly for a variety of purposes will almost certainly benefit, both educationally and personally. Further, such mature reading habits are thought to be relatively long-lasting and should, therefore, lead to an informed and reading adult citizen. For this reason effective instruction leading to the acquisition of skills in book selection and use is an important educational objective for the elementary school years.

In this study it was assumed that mature reading behavior is characterized by the habit of reading (a) relatively large amounts (b) of high quality material (c) in a variety of fields. The purpose of this study was to examine these variables--quantity, quality, and variety of reading--in relation to a selection of academic, cognitive, and personality variables.

When Gray and Rogers (1956) applied their scale of reading maturity to a sample community in the United States, one of their most interesting findings was that no subject emerged with superior reading habits. For the sample as a whole the authors concluded that "without doubt, the most impressive fact revealed relates to the predominately low rankings given to these cases." (Gray and Rogers, 1956, p. 166) Only by searching the country were they able to identify a handful of exemplars to validate the upper limits of their scales. If one still accepts the Jeffersonian view that a major educational goal and responsibility is the provision for an informed and reading citizen, then the findings of this now classic study continue to warrant serious consideration.

In this light it is interesting to note the following observation in the Encyclopedia of Educational Research published nearly fifteen years after Gray and Rogers' Maturity in Reading.

> Little is likewise known in a research sense about techniques for the improvement of reading tastes--if--the reading habits of American adults are accepted as a criteria, there is little evidence that present techniques of teaching and of controlling the reading diet in American schools has positively influenced more than a small proportion of adult readers (p. 1081).

It would appear that the Gray and Rogers' study too should be added to that excellent list by Singer of "Research that should have made a difference" but didn't. (1970) A principal aim of the present study has been to obtain an objective view of these "taste" variables early in the life of the reader at the time when education is presumably influencing the formation of life-time reading habits.

A striking characteristic of the Gray and Rogers' criteria for reading maturity was that only one of the five basic measures dealt with reading comprehension, that is, "the recognition and construction of meaning." The four remaining criteria were concerned with the selection and use of the material read. Clearly the implication is that reading efficiency, however necessary, is not thought by these authors a sufficient attainment for reading maturity.

Practices in today's schools are at variance with this position. They place the principal, indeed almost exclusive,

emphasis upon efficiency and relegate selection and use to incidental learning. In the Austin and Morrison (1963) survey of reading instruction it was reported that 86% of the schools in the sample did not favor "individualized reading" and 64% indicated that their systems relied predominately or exclusively upon a single basal reading series as the chief tool of instruction. Examination of most basal series makes it clear at once that they approve of "wide reading." The manual of instruction typically includes suggested additional reading for nearly every story presented. It is also clear, however, that class time is not provided for this purpose.

An exception to this practice was the Holt, Rinehart, and Winston series (Stauffer, et al, 1960) in which the author advocated that the basal reader be used no more than half the time, and that the remaining time be devoted to formal instruction in the selection and assimilation of trade or library books. It is somewhat ironic to note that this series has been abandoned by its publisher.

While little practiced, individualized reading has long been advocated (Whipple, 1925) and variously tested in the field (Lazar, 1957; Miel, 1958; Veatch, 1969; Stauffer, 1969, for example). Not surprisingly research comparisons of this with a basal approach have yielded conflicting findings along with the usual observations about Hawthorne effects and the impropriety of anecdotal evidence (McCristy, 1957; Veatch, 1960; Stauffer; Hammond, 1966). Curiously the major basis for comparison has almost always been the ubiquitous standardized test. Only a secondary attention has been given in these studies to

what and whether and why subjects were reading. It has been a major aim of the present study to effect a reliable and valid measurement of the quantity, quality and variety of children's reading so that it can be considered in relation to standardized test performance.

A review of the literature reveals numerous studies of library usage and children's reading interests; for example, Norvell (1958) and Witty (1960). Little has been discovered, however, about the relationships between these variables and other educational and psychological traits. Peltola (1963), for example, found no difference in book preferences between good and poor readers in first grade. Stanchfield (1962) likewise found no difference in reading interests of boys of different reading abilities. Ramsey (1962), on the other hand, found that poor readers owned and read fewer books than good readers, but did not differ in the "best type of book ever read" or in the reading topics preferred. It should be noted that these data were based upon questionnaires, there was no control for IQ or socio-economic class, nor were statistical differences declared.

More positive findings were reported by Daigon (1963) who studied the independent reading of seventh graders. Girls who scored highest on reading comprehension tests exceeded the rest of the sample in the number, variety and difficulty of books read. Boys who were lowest read the least books, concentrating mainly upon mysteries. While interesting and supportive to the general hypothesis of the present study, Daigon's findings relative to the correlates of independent reading are limited to sex and reading achievement.

At the college level Abe (1966) studying the "non-intellectual indices of academic achievement" found high loadings on a factor for questionnaire items related to amount and quality of independent reading. Lane (1966), on the other hand, found no significant relationships between the use of the University Library and academic achievement.

One can surmise on the basis of the findings summarized above that among fifth graders also efficiency of reading as measured in standardized tests will be positively related to amount of independent reading. It is less clear, however, among a sample of achieving readers, to what degree variety of selection and quality of material read will be related to those same standardized tests. Also, unclear is the relationship of independent reading behavior to specific personality variables.

In another line of research comparing differential achievement in reading arithmetic the present authors found the self social concepts of high fifth grade readers to be significantly different from those who were high in math. (Henderson and Long, 1966) The sterotype of the anti-social bookworm suggests that a high amount of reading in contrast to higher quality and variety, might indeed be described as an escapist pattern indulged in by the child who lacks self-confidence and social skills. It is hoped that the present study might make possible an objective appraisal of this question.

That socioeconomic level is associated with quantity of reading is strongly suggested in an early study (National Opinion Research Center, 1946) where subjects in a "professional" category were found to report reading twice as many books as "technical

subjects" and three times as many as those in the trade and labor group. Whether or not such pronounced differences would obtain among children enjoying an equal opportunity to use a good school library remained an open question for this study.

While the authors failed to find specific studies dealing with the academic correlates of extra-curricular activities; much attention has been given in reading literature to "time spent watching television" (Bogart, 1956; Witty and Kinsella, 1962; Parker, 1963, for example). In general findings suggest a negative relationship between the two activities; however, in some cases this is attributed merely to a transient novelty phase and in one study (Schramm, et al, 1961) television was found to relate positively to vocabulary development. It was believed that in the present study a more meaningful interpretation of these variables could be made by viewing them in relation to other out-of-school activities--such as time spent in free play, organized activities, sleep, and the like.

In summary, this study has attempted to consider certain academic, cognitive, and personality variables in relation to correlates of three aspects of independent reading behavior. Inasmuch as little previous research had been carried out in relation to children's independent reading, the study was largely exploratory--that is, a relatively large number of variables were measured, but specific hypotheses were not drawn for each.

General hypotheses were declared as follows:

1. It was predicted that generally positive relations be found between the measures of quantity, quality and variety.

2. It was believed that verbal ability and standardized tests of achievement would be positively related with quantity, quality, and variety of reading.

3. It was thought that the measures of quantity, quality, and variety would reflect background and personality characteristics, as well as the way in which out-of-school time was occupied.

Method

Subjects

Subjects consisted of 105 boys and 102 girls from seven fifth-grade classes in two elementary schools in the Stanton Special School District near Wilmington, Delaware. This district is fairly typical of eastern suburban "sprawl" with a wide range of socioeconomic levels (see Table 1). The two schools selected were chosen because each had good libraries managed by experienced school librarians. Subjects finally included in the study were all fifth graders from these two schools for whom data were complete and whose reading levels as measured by the Gates MacGinitie Reading Tests Survey D were at grade level or above. This latter limitation was imposed in the belief that a study of independent reading behavior should, insofar as possible, avoid the confounding effects of gross learning disability.

From the original 207 subjects who completed the first testing session, twenty-four were lost because of absence during a testing period or moving from the districts. Thirty-three were eliminated because they were not reading up to grade level. The final correlational analyses were carried out on 75 boys and 75 girls.

Because a number of these subjects had taken none or very few books from the library during the testing period, the measure of quality and variety of reading was considered inadequate. The sample was, therefore, reduced to 65 girls and 57 boys who had taken at least three books from the library during the testing period and who met all other criteria described above.

A final set of analyses were carried out with the 12 highest boys and 12 highest girls and 12 lowest boys and 12 lowest girls in amount of reading based upon the three measures of quantity.

Library Record (QL)

Prior to the opening of school, the chief librarian of the district and two school librarians met to devise a system for recording the library use by the fifth grade pupils. With the permission of the chief school officer and the building principals it was agreed that no other school personnel should know of the study until the library data had been gathered.

For six weeks beginning on the 23rd of September each day's circulation was monitored by requiring all children to write their homeroom number and name on the card of each book checked out. A research assistant sorted the cards each day by room and prepared a cumulative record of the title and author of all books checked out by each pupil in the sample. The number of books checked out by each subject was the measure of quantity for library use--termed quantity library (QL).

By beginning the library record toward the end of September it was thought that the back-to-school aura would be avoided and more typical routines sampled. During this 6-week period, as

throughout the year, pupils in both schools had an opportunity to visit the library independently before and after school, as well as at specified times during the course of their on-going classroom activities.

Home Reading Record (QH)

Following the gathering of the library data, the experimenters met with the teachers of all the children in the sample, explained the scope of the study and reviewed the procedures for further data collection. A pupil reading record was kept for two weeks in December. A booklet of blank record sheets was prepared for each pupil and standard instructions. These were read as follows:

> Our class has been invited to take part in a study designed to investigate what boys and girls are reading and what they think of what they have read. For the coming weeks you are asked to list each book that you read by title and author in this record booklet. Do not list magazines or comic books. List only regular books that you have selected to read. After you write down the title and author, you are asked to check on the record sheet whether or not you finished the book, and then write down the number of pages in the book. Finally, you are asked to rate the book by giving it a grade of A, B, C, or D. A means very good, B good, C fair, and D poor.
>
> These records must be kept in school, so you will be given time to fill them in each day. If you usually read a number of books over the weekend, you might need

to keep a list of them in order to complete your record correctly on Monday morning.

Some pupils will probably list many books; others few. That is all right, because what is wanted is what you really have read and what you really think of it.

When the home reading records were completed, a cumulative record of title, author, and number of pages read was made for each pupil. A second measure of quantity of reading, termed quantity home (QH) was devised as follows: unfinished book, one point; finished less than 100 pages, two points; finished 100-200 pages, three points; finished over 200 pages, four points.

Variety of Reading (VL & VH)

For the measure of variety and quality a master list of different titles was compiled from the library and home records. Variety of reading was measured separately for each record for each subject. The librarians and examiners agreed upon eighteen categories on which to array all titles (see Table 2). After practicing together with a sample of 100 books, the librarians categorized independently a second sample (where a high level of agreement was attained) and then proceeded to categorize all titles in both reading records.

The score for variety was statistic "H" (measure of uncertainty) computed for each student on the basis of the way in which his book titles were distributed over the different categories. A high value of "H" indicates greater variability in type of reading. For example, for a system of eight categories, four books in each category yields an "H" of 2.96. On the other

hand, thirty books in a single category, two in another, and none in the other six would yield an "H" of .34. The two variety scores are termed variety library (VL) and variety home (VH).

Quality of Reading (QlL & QlH)

For the ratings of quality, the experimenters and librarians first met and agreed upon a four-point quality rating scale. This scale was based upon level of vocabulary, complexity or depth of plot or factual material, and freedom from stereotyped style, plot or characterization. A rating of 4 was understood to designate a book that was clearly a classic of its kind, Wilder, Little Town on the Prairie and Carson, Life under the Sea, for example. A rating of 3 designated very good books, such as Doyle's Sherlock Holmes or Wyler's Inside the Earth. Work-a-day books like We Were with the Mayflower Pilgrims by Webb or Football Stars in 1968 by Steinbeck were rated 2. A 1 rating was reserved for the widely recognized stereotypes such as Hope's The Bobbsey Twins or Stevenson's Miles Standish.

The librarians first rated independently a random sample of one hundred books taken from the master list. Then these ratings were compared and differences were discussed. Next they were given a second sample of one hundred books to rate and these ratings were found to produce a reliability coefficient of .88.

As this was deemed a satisfactory level of rater reliability, the librarians were then instructed to complete the quality ratings for each title independently and average ratings were finally assigned each title.

For each pupil in the sample a mean quality score (summed quality score--divided by number of books read) was computed

separately for his library and home reading records. These scores are afterwards termed quality library (QlL) and quality home (QlH).

Pupil Time Record

The pupil time record was administered over a two-week period in March. Mimeographed sheets marked off in a double column grid for the twenty-four hours were distributed to each classroom. Pupils were given about ten minutes each morning and each afternoon to fill in the blanks indicating how they spent their time. Standard instructions were these:

> As part of your participation in the research study, you have been asked to keep a record of how you spend your time. These sheets are marked to show the twenty-four hours of the day. There is room so that you can write down what you were doing during the hours of the day. For example, if you had supper at six, you would write supper next to 6 p.m. Then what did you do next? Help with the dishes? If so write that down. Keep going so that you show what you did all through the day--reading, sleeping, practicing the piano, playing football, going to Scouts, put down everything that you do.
>
> You will be given time each morning and afternoon to work on your record. Do it carefully and neatly. Before we turn them in we will be able to do some interesting things with these records ourselves; so be sure that your record really shows what you have been doing.

When pupils were finished with their time records, the time records were coded for each subject according to the following seven categories: reading, sleeping, homework, organized activities, television, chores, free play. In each case the number of hours for each activity were summed for each subject.

A random sample of seventy-five time records was drawn in order to obtain a measure of reliability. Split half reliability coefficients corrected for length (week 1 versus week 2) ranged from .66 to .88, inter-coder reliabilities from .73 to .95 (see Table 3).

Academic and Personality Tests

A series of group testing sessions were held at each school to administer the following instruments: Gates-MacGinitie Reading Survey D, Otis Quick Scoring Mental Ability Test, Beta Form, Self Social Symbol Tasks, Childrens Test of Reading Attitude, and an adjective check list. In addition, subjects were called on to supply a list of brother and sisters with ages and their fathers' occupation. The latter was then assigned a rating of one to seven on the basis of Hollingsheads' Occupational Scale and used as an index of socioeconomic level.

Self Social Symbols Tasks

The Self Social Symbols Tasks is a non-verbal test yielding twelve measures of self-concept. (Long, Ziller and Henderson, 1968) In this test, the subject is presented with a booklet containing a series of symbolic arrays in which circles or other figures represent the self or other persons of importance. The subjects respond to each task by arranging the symbols in specific

ways--that is, by selecting a symbol from those presented to represent the self or by drawing a symbol representing the self on the page with the other symbols.

From these arrangements, in which the subject relates himself symbolically to a variety of social configurations, certain aspects of the person's conception of himself are inferred. It is assumed that the patterns seen in these arrangements represent relations within the person's life space, and that these patterns are readily interpretable, containing easily translatable common meanings.

In this test, attention is focused upon seven components of the self.

Esteem. In the six esteem tasks, S places an array of six persons, always including the self, in a row of circles. Higher esteem is scored for placement of the self to the left.

Social interest. In the six tasks for social interest, S is presented with an array of three circles arranged to one side of the page at the apexes of a triangle, which represent "friends," "parents," and "teachers." He is asked to draw a circle representing the self anywhere on the page; placement of the self with the other persons is interpreted as higher social interest.

Egocentricity. In the six tasks measuring egocentricity, S is presented with a large circle and asked to draw a circle for "self" and for "friend." Placement of the self closer to the center is interpreted as higher egocentricity.

Power. In the six power items, a circle representing "self" is placed to the center of a semicircle of blank circles. The S is asked to place the "other" (father, teacher, etc.) in one of

these circles. A lower position for the other is interpreted as higher power for the self.

Complexity. In the 10 items related to complexity, S chooses a symbol to represent the "self" from arrays of three symbols varying in complexity (see Glanzer & Clark, 1963). A higher score for complexity is awarded for the choice of more complex figures.

Individuation. In the 10 tasks for individuation, S is presented with an array of circles within a rectangle, the majority of which are of one kind, the rest of another (e.g., shade, plain). He then selects a circle to represent the self from three circles to the right of the page, with a higher score for individuation given for the choice of the minority or "different" figure.

Group identification. In each of the four tasks for group identification, S is presented with an array of 10 persons, always including the self, and asked to arrange them into groups. The score for group identification is the number of persons in the self-group. In addition, a score for identification with parents is derived from these tasks--1 point is awarded for each parent placed in the self-group.

Identification with particular others. These items measure the degree of identification with mother, father, teacher, and friend, with two items included for each of these. In each task, a row of circles is presented with the other person located in the circle of the extreme left or right. S is asked to select a circle to represent the self, with a higher socre for identification given for placement closer to the other person.

Adjective Check List

The adjective check list was composed of 110 high-frequency adjectives from the Thorndike Lorge teachers word book (1944). Subjects were instructed to check those adjectives that were descriptive of the self (see Long, Henderson and Ziller, 1967).

In order to render the check list more amenable to quantitative analysis the adjectives were rated on a seven-point scale from "good" to "bad" by 21 women who were students in an adult college course in history (median age 48). It was thought that the mean rating of these subjects on an evaluative dimension might serve as an index of the social desirability of each adjective.

Children's Test of Reading Attitude

The Children's Test of Reading Attitude consists of 25 statements, seven of which are favorable and eighteen negative. Subjects used a five-point scale from strongly agree to strongly disagree. Weighted scores (with the higher score indicating a more favorable attitude) were summed over the twenty-five items to yield a total score.

Analyses

A total of thirty-five scores for each subject were tabulated and entered on cards for computer analysis. First, all variables were intercorrelated for the total sample of 150 subjects and separately for the 75 boys and 75 girls and for 98 subjects in categories 1 to 4 and 52 subjects in categories 5 to 7 on the Hollingshead scale. Next the sample was reduced by dropping all subjects who had selected less than three books and again all variables were intercorrelated for a total sample of 122 and

separately for 65 girls and 57 boys. Finally a sex by reading group analysis of variance was run for the twelve highest and twelve lowest boys and girls on the basis of the three quantity measures (QL, QH, and Q).

Results

In this section findings relating to the validity of the quantity, quality, and variety measures will be considered first. Next the relationships among these measures will be reported, first in terms of the correlational analysis for the reduced sample, and second on the basis of an analysis of variance for high and low quantity readers.

Findings for the achievement, personality, time, and background variables will be presented in terms of the same sample of 24 high and 24 low readers (half boys, half girls). In general significant relations in these analyses of variance were substantially the same as those found in the correlational analyses. Where the latter supply additional information, these findings will also be reported.

Findings for quality of reading in relation to academic, personality, time, and background variables will be next presented in terms of the correlational analyses. Differences between quality of library and home reading records will next be presented for high, middle, and low socioeconomic groups. Finally, findings will be reported for the kinds of books read for home and library records by boys and girls.

Validity

Correlations between the library and home record for quantity, variety, and quality of reading are shown in Table 4.

Since the records were taken at different times of the year in different settings (i.e., library vs home) and for relatively short periods of time, some variation between the measures would be expected. These conditions may, in part, account for the moderate level of the relations found. Each of these relations, however, is positive and significant. A further indication reflecting positively upon the validity of the measures is seen in the positive relations found between the quantity measures for home and library and the pupils' report of time spent reading (see footnote Table 4).

Quantity/Quality/Variety

The relations among the various measures of quantity, quality, and variety of reading are shown in Table 5.

The relations between measures of variety and quantity were found to be relatively high for girls, and low but significant for boys within the library and home records. Across records, the relation holds between quantity-library and variety-home for the girls and for the boys and girls combined. Otherwise it does not. No significant relations were found between the variety measures and those for time spent reading.

For the correlations between quantity and quality one significant finding emerged. Time spent reading was found to be negatively related to quality library for the boys. Further, there is a trend among this group ($p = .10$) in the same direction between time and quality home.

Between variety and quality on the home record, boys showed a positive correlation, girls a negative one. In addition, for boys only, variety on the home record was related positively to quality on the library record.

Findings from the correlational analyses were supported by those from the analyses of variance (see Table 6). No main effects were found for the two variety and two quality measures, though one significant interaction and three interaction trends emerged for these variables. These reflect the relatively stronger positive relations found for girls between quantity and variety, and the negative relations found for boys, but not girls, between quantity and quality.

Achievement

The relatively high intercorrelations among subtest of reading and intelligence (range = .45 to .98) suggested that these might well be considered a single variable. Analyses for high and low quantity readers are shown in Table 7.

Here a strong and positive relation between quantity of reading and all academic variables was found. In addition one sex effect emerged--girls were significantly lower than boys on the reading comprehension subtest. One notes that their mean IQ's were also slightly lower though not significantly so.

Personality

Two effects were found differentiating high and low quantity readers on the Self Social Symbols Tasks--a main effect for group identification and a sex by reading group interaction for power. Low readers placed significantly more others in the self group,

while the high-reading boys and low-reading girls were higher on power. In addition, among the boys there was a negative relation ($r = -.34$) between QL and individuation and between QH and identification with father ($r = -.29$). A similar trend ($r = -.26$, $p = .10$) was found between QT and identification father. For the girls a negative relation ($r = -.32$) between QL and identification teacher and a positive relation ($r = +.30$) between QT and identification friend were found.

These rather complex findings related to the identification items are clarified by the analyses of variance (see Table 9). For the girls a significant interaction was found between reading group and stimulus person. The high-reading girls are relatively further from teacher and closer to mother, father, and friend. For the boys this interaction was not significant; however, the father-mother and father-friend deference scores differentiate the high and low boys at a significant level. The high boys are relatively further from father and closer to mother and friend.

Number of adjectives checked did not differentiate the high and low readers. When correlations were run between frequency of endorsement and "good-bad" rating for each of the four sub-groups (high and low boys and girls) and for the highs and lows combined (see Table 10), all of these were significantly different from zero. Further, these correlations were significantly higher in each of the three cases for the low group. Thus low readers showed a greater effect for social desirability in their self-descriptions.

Reading Attitude

Attitude toward reading was also analyzed for high and low

quantity readers and yielded two main effects. High readers had a more positive attitude toward reading ($F = 28.46$, $p = .001$), and girls were more positive toward reading than were boys ($F = 5.89$, $p = .05$).

Time

Significant effects for time variables are reported in Table 11. High quantity readers reported more time spent reading and less time watching television. An interaction for homework appears to arise from the considerably longer work time reported by low-reading boys in contrast to high-reading boys ($t = 2.30$, $p = .05$). There was a nonsignificant trend for the girls in the opposite direction. Two sex effects indicate that girls reported more time spent at chores and on organized activities.

Background Data

Table 12 shows findings for birth order and for socioeconomic level as measured by Hollingsheads' occupational scale. For the former a trend and for the latter a significant main effect and interaction were found. High quantity readers tended to be the elder child, and this effect is significant where tested for girls alone. As expected, socioeconomic level was found to be positively related to high quantity reading.

Quality of Reading

The measures for quality of reading were unrelated or negatively related (QlH vs QH for boys, $r = -.27$, $p = .05$) to quantity. However, a number of other findings related to quality were made.

Among the boys quality of reading was negatively related to IQ (QlL vs IQ, $r = -.29$, $p = .05$; QlH vs IQ, $r = -.34$, $p = .01$,

N = 57) and to three measures of reading achievement (Q1H vs Accuracy, r = -.23, p = .10; Vocabulary, r = -.40, p = .01; Comprehension, r = -.31, p = .05). Quality also tended to be negatively related to time spent reading (Q1L vs QT, r = -.27, p = .05; Q1H vs QT, r = -.24, p = .10) and to Reading Attitude (Q1L vs Read.Att., r = -.24, p = .10) for the boys. Among the middle class (Hollingsheads' categories 1-4, N = 98) high quality readers were, on the self-concept tasks more identified with mother (r = +.31, p = .01), and with father (r = +.20, p = .05). On the time variables, quality for boys and girls combined was related to time spent on chores (r = .18, p = .05, N = 122) and for boys alone quality was related to time spent at homework (r = +.28, p = .05, N = 57). For girls alone quality was negatively related to time spent sleeping (Q1H vs Sleep, r = -.26, p = .05, N = 65).

A somewhat different look at the quality variable is presented in Table 13. Here the means and tests for significance for differences in quality between home and library records are shown in terms of three socioeconomic levels. For all three groups of boys home reading was lower in quality than library reading. This difference was significant for the lowest socioeconomic class group and for all boys combined. For the girls in the lowest socioeconomic group a similar effect was found with the home reading significnntly lower in quality. For the middle-high class girls, however, home reading tended to be slightly higher in quality, but this difference was not significant. The middle and high class girls thus tended to differ from the other four groups.

Discussion

Exploratory in design, the present study sought answers to these questions regarding the independent reading habits of achieving fifth-grade pupils: are quantity, variety, and quality of reading positively related to (a) each other, (b) achievement, (c) intelligence, (d) certain background and personality characteristics and pupil allocations of time?

Findings will be discussed in terms of these general questions after a consideration of the validity of the quantity, variety, and quality measures.

Validity

The key to validity for the principal measures in this study is the operation defining each measure of quantity. Both variety and quality depend upon these and are themselves straightforward categories and ratings with acceptable reliabilities. When, however, library circulation, for example, has been monitored, there remains the question of whether or not children actually read the books checked out. Almost certainly in some cases they read but a part or even none of a particular selection. Further, while amount of library use is itself an agreeably hard measure, there could scarecely be a one-to-one correspondence between it and a child's report of books read at another time of year or his report of time spent reading at still another. Fluctuation of interests and responsibilities over time would lead to considerable variation, particularly for ten-year-old children. There might also be considerable variation in the simple accuracy or honesty of each self-report. On the other hand, one might

reasonably expect, as was found, significant and positive relations between the number of books checked out of the library and the number of pages reported read even at a different time of year and even considering that some children may make more extensive use of home and local libraries than do others. Further, one might expect, as was also found, a positive but low relation between library and home records and the report of time spent reading. Here factors of reading efficiency would tend to weigh against such a position correlation.

When one adds to these considerations the finding that quantity of reading was, as predicted, positively related to measures of reading achievement, intelligence, and attitude toward reading, it is possible to claim a certain construct as well as empirical validity for the quantity measures. In short, while a library record or report of home reading cannot be thought of as an absolute, the evidence suggests that these records are valid measures of quantity of reading.

An implication of these findings is the thought that library circulation figures might well serve as important auxiliary measures in curriculum evaluations. The possibilities in the use of computerized library cards, where sampling and sorting on many dimensions would be possible, make this prospect particularly attractive. It might be noted, however, that such a record would present an inflated value for quality of reading for all lower class children, and even for middle and upper class boys (see Table 14).

Quantity/Quality/Variety

The Gray and Rogers' model of the mature reader as one who

reads efficiently much good material in many fields suggest that one might expect some correspondence among the variables of quantity, variety, and quality of reading. Because they did not find such a correspondence among adults and because little such research has been done with children, this question has continued undecided. In the present study, only a tenuous relation between quantity and variety and between variety and quality was found for girls, while for boys there appeared no relation or in one instance a negative relation (between quality of reading and quantity). The finding that the variety-quantity relation tends to hold within record type, i.e., QH vs VH and QL vs VL but not across measures or with QT, suggests that the effect may be artifactual rather than stemming from any firm tendency for the high quantity reader to exercise a broad spectrum of selection.

In the analysis of variance, contrasting highest and lowest on the basis of the three quantity measures, the interaction for both variety measures was found to stem from a greater breadth of selection on the part of high-reading girls. For boys there appeared to be little relation between the measures of quantity and variety. In this analysis the relation between quantity and quality was not significant. However, trends ($p = .10$) for both measures of quality were found, and in both the effects may be attributed to the significantly lower quality score for the high reading boys. Taken together these findings would seem to warrant the conclusion that fifth-grade boys who are ample readers read much relatively poor material in a rather narrow topical range.

It is important to recognize, of course, that in absolute terms these high-quantity readers may read more high-quality

books than do those who read very little. Their time spend reading, however, is not used to greatest advantage in terms of conventional standards regarding the value of excellence in literature.

From this set of findings two questions arise. First, how may the variety and quality of selection among fifth graders be improved? One would expect that a curriculum in which time was spent selecting and evaluating books might have a greater effect that one in which children were simply exhorted to read "good" books. Second, are conventional standards for these variables realistic, i.e., is there an optimum or necessary level of low quality (perhaps easy) reading required to provide fluency as well as a ground for the discrimination of excellence?

High Quality Readers

The findings related to the correlates of the quality of reading, suggest that, for the boys, the less efficient as well as the less abundant readers are reading better books. This set of findings is somewhat paradoxical, but may be clarified by certain other findings for quality. Specifically, the positive relation to time spent in chores and time spent in homework, along with the greater closeness to parents suggests that the high quality readers are somewhat parent-dominated and may perhaps be characterized as rather docile. This kind of child is perhaps the more susceptible to an exhortation to read "good" books. In the case of boys, however, this high quality reader is also of lower intelligence, does not read many books, and reads them less efficiently than do boys who read more "trash."

Achievement

The positive and consistent relation found between the quantity and achievement measures was expected. High achievement on standardized tests thus does go along with high quantity of reading. The relation of variety and quality to achievement moreover followed the same rather nebulous pattern as their relation with quantity. High achievement on standardized tests was either unrelated or for boys, in some cases, negatively related to variety and quality of selection.

Intelligence

As noted earlier the high correlations found between the Otis intelligence test and Gates test of reading suggest that the two instruments are measuring substantially the same variable. Not surprisingly the relations found between IQ and the various measures of quantity, variety, and quality largely paralleled those found for the same measures with achievement. These findings for intelligence would seem to add more to the consistency of the data, and thereby to one's confidence in it, than to its meaning.

Personality, Background, and Time

Because the quantity variables are associated with group intelligence and standardized achievement, it would be expected that the personality, background, and time characteristics of the high quantity readers would resemble those typically found for high reading achievement groups. A number of findings support this idea; a few do not.

Both findings relating background characteristics and quantity of reading, for example, are in harmony with what would be expected for an achievement variable. The trend for the older sibling to be a higher reader, attributable to the girls, not boys, seems consistent with the numerous studies associating higher achievement with early birth position in the family. The positive association between socioeconomic class and achievement is, likewise, a common finding.

Similarly, the negative relation between television time and time reading would be consistent with findings for achievement. High quantity readers like high achievers watch less television. In a sense the various time measures form a set of ipsative scales, since the total amount of time is of course the same for all. Thus, to a degree the television vs reading may be a forced choice, i.e., choosing to watch television would seem to preclude much reading, and vice versa. Undoubtedly, this condition aggravates the tendency to infer causality from the negative relation between the two occupations. The other significant relation in the time category is the less time spent on homework by the high reading boys. This effect, not found for the girls, may be either a function of their greater efficiency (see above) or, perhaps, of their non-conformity (see below).

The findings for power are somewhat unexpected. High reading boys were high on power; that is, they placed father, teacher, and friend on a par with the symbol for self in an array, as did the low reading girls. This was in contrast to the low boys and high girls, who put the other person in a higher position relative

to self. Why a less respectful attitude should be characteristic of the high boys and lower girls is not clear.

For group identification, where high reading boys and girls place fewer other people in the self groups, it would seem that greater social inclusiveness characterizes the non-readers. In a sample of high school students (Long, Ziller, and Henderson, 1968) boys placed significantly more others with the self. Thus, the lower scores of the high reading boys may suggest a less masculine pattern. Support for this idea also comes from the finding of less individuation for boys who read more, since individuation, in a fairly large elementary school study, was also significantly higher for the boys (Long, Henderson, and Ziller, 1967b). This idea also receives support from the results related to identification--high reading boys apparently reveal an antipathy to father in contrast to mother and teacher; again a seemingly less masculine response. Thus, for boys, the high reading pattern may suggest certain elements of feminization, a-socialization, and non-conformity. These characteristics show some resemblance to the stereotype of the "bookworm."

The high reading girls, while low on power, resemble the high boys in that they put fewer others with the self. In contrast to the boys, however, is their pattern of identifications where an antipathy for teacher is found, compared with parents and friends.

Perhaps the most interesting of the findings related to personality is the stronger effect found for both sexes of social desirability in the self-description of the non-readers. Crowne and Marlowe (1964) suggest that subjects high in need of social approval (who also describe the self in socially desirable terms)

appear to be affiliatively dependent, more conforming, and lacking in assertiveness. Such a person would seem to fit Riesman's (1950) description of the "other-directed" person. To apply these ideas to the non-readers here would seem distinctly speculative. Nonetheless, the lower scores for group identification, and the antipathy for what may be the chief authority figure in each case (father for boys, teacher for girls) may also support the idea of greater self-direction for the high readers.

In summary, the findings of this study suggest that it is possible to secure indices of the quantity, quality, and variety of the independent reading of school-age children. These three aspects of independent readers are not, however, strongly related to each other. Quantity of reading is related to conventional achievement measures, to a positive attitude toward reading, and to a higher socioeconomic level. While findings related to the personality characteristics of high quantity readers are suggestive and not definitive; it appears that the high readers of both sexes present a somewhat non-social, non-conforming, and self-directing pattern. The opposite was found for those children who could but did not read.

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Footnote

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Table 1. Socioeconomic Level (Hollingshead's Occupational Scale) for father's occupation for original and reduced sample.[1]

A. Original Sample

	Occupational Level							
	1	2	3	4	5	6	7	Total
Boys	15	7	10	17	14	10	2	75
Girls	17	12	13	7	9	15	2	75
Total	32	19	23	24	23	25	4	150

B. Reduced Sample

Boys	10	5	10	13	10	8	1	57
Girls	16	10	11	7	7	12	2	65
Total	26	15	21	20	17	20	3	122

1. 1 = higher executives, major professional; 2 = business managers, lesser professionals; 3 = administrative personnel, minor professionals; 4 = clerical, sales, technicians; 5 = skilled manual employees; 6 = semi-skilled manual employees; 7 = unskilled employees.

Table 2. Per cent of pupils reading books in each topical category.

Category	Library			Home		
	Boys	Girls	Total	Boys	Girls	Total
N	74	74	148	75	74	149
1.Folk, Fairy	24%	38%	31%	11%	21%	15%
2.Government Space Transportation	24%	0%	12%	16%	0%	8%
3.Animals	24%	15%	20%	19%	12%	15%
4.Science	41%	23%	32%	29%	14%	21%
5.Community Life Industry	7%	3%	5%	3%	0%	2%
6.Arts, Crafts Music	11%	9%	10%	12%	5%	9%
7.Sports	28%	7%	18%	21%	1%	11%
8.Poetry	7%	16%	11%	7%	18%	12%
9.Jokes, Riddles	8%	5%	7%	8%	3%	6%
10.Biography	47%	27%	37%	53%	44%	49%
11.History Geography	31%	11%	21%	13%	12%	12%
12.Mystery	23%	45%	34%	27%	59%	42%
13.Animal Fiction	12%	38%	25%	28%	36%	32%
14.Sport Fiction	18%	3%	11%	12%	4%	8%
15.Science Fiction	14%	9%	11%	12%	5%	9%
16.Fiction Community Life	22%	72%	47%	23%	82%	52%
17.Fantasy	14%	54%	34%	20%	38%	29%
18.Adventure	26%	32%	29%	35%	30%	33%

Table 3. Split-half reliability coefficients corrected for length (week 1 vs week 2) and inter-rater reliability coefficients for the seven measures of time.

Measure	Week 1 vs week 2	Coder 1 vs coder 2
Reading	.66	.95
TV	.88	.97
Sleep	.84	.73
Organized Activities	.77	.88
Chores	.79	.87
Homework	.73	.95
Free Play	.86	.93

Table 4. Correlations between quantity of reading, variety of reading and quality of reading for library and home records for boys and girls and total sample.

	N	Quantity-quantity[1]	Variety-variety	Quality-quality
Boys	57	.43**	.34**	.40**
Girls	65	.43**	.24*	.34**
Total	122	.41**	.30**	.36**

1. Correlations between time spent reading and (a) library quantity and (b) home quantity respectively were (a) .34 and (b) .29 for the total sample, (a) .44 and (b) .39 for the boys and (a) .18 and (b) .19 for the girls.

* p = .05
** p = .01

Table 5. Correlations between the various measures of quantity, quality and variety for boys, girls and total sample.[1]

	Boys 57	Girls 65	Total 122
I. Quantity vs Variety			
QL vs VL	.29*	.46**	.33*
QH vs VH	.27*	.51**	.40**
QL vs VH	.14	.25*	.18*
QH vs VL	-.03	.21	.09
QT vs VL	-.10	-.03	-.08
QT vs VH	.03	-.05	-.00
II. Quantity vs Quality			
QL vs Q1L	-.06	-.11	-.08
QH vs Q1H	-.03	-.06	-.04
QL vs Q1H	.08	-.17	-.06
QH vs Q1L	.04	.06	.05
QT vs Q1L	-.27*	.11	-.12
QT vs Q1H	-.24	.19	-.06
III. Variety vs Quality			
VL vs Q1L	-.03	-.05	.09
VH vs Q1H	.48**	-.32**	.08
VL vs Q1H	.23	-.05	.12
VH vs Q1L	.27*	-.11	.12

* significant at .05 level
** significant at .01 level

1. L refers to Library records; H to home records; T to time spent reading. Q designates quantity; Q1, Quality, and V, variety.

Table 6. Means and tests of significance for quantity, quality, and variety of library and home reading records for high and low reading boys and girls.

		Means			F Ratios		
		High	Low	Total	Reading	Sex	Interaction
Quantity Library	Boys	15.7	6.4	11.0			
	Girls	15.2	6.0	10.6	45.36***		
	Total	15.4	6.2				
Quantity Home	Boys	35.0	11.3	23.1			
	Girls	38.9	8.5	18.8	75.0***		
	Total	37.0	9.9				
Variety Library	Boys	1.9	1.8	1.9			
	Girls	2.3	1.7	2.0			3.71*(a)
	Total	2.1	1.8				
Variety Home	Boys	1.5	1.7	1.6			
	Girls	2.0	1.2	1.6			5.28**
	Total	1.8	1.4				
Quality Library	Boys	2.3	2.6	2.4			
	Girls	2.4	2.3	2.3			3.22*
	Total	2.4	2.4				
Quality Home	Boys	2.1	2.3	2.2			
	Girls	2.3	2.4	2.3			3.46*(b)
	Total	2.2	2.3				

* .10 level of significance
** .05 level of significance
*** .001 level of significance

a. Trend for interaction in variety-library is due to difference between high and low girls, which is significant ($t = 2.74$, $p = .02$).

b. Trend for sex in quality-home is attributible to the high boys who are significantly lower in quality than each of the other three cells (high boys vs low boys, $t = 1.96$; high boys vs high girls, $t = 2.67$; high boys vs low girls, $t = 2.17$).

Table 7. Means and tests of significance for Otis IQ's and four scores from the Gates-MacGinitie Reading, Survey D for high and low boys and girls (N = 12 in each cell).

		Means			F Ratios		
		High	Low	Total	Reading	Sex	Interaction
Otis IQ	Boys	112.4	106.6	109.5			
	Girls	110.7	102.5	106.6	12.66***		
	Total	111.5	104.5				
Gates Speed	Boys	27.7	23.0	25.3			
	Girls	29.2	22.8	25.0	9.93**		
	Total	28.5	22.9				
Gates Accuracy	Boys	27.4	22.6	25.0			
	Girls	28.2	21.6	24.9	10.88**		
	Total	27.8	22.1				
Gates Vocabulary	Boys	39.7	34.6	37.1			
	Girls	39.6	32.9	36.2	16.28***		
	Total	39.6	33.8				
Gates Comprehension	Boys	46.7	40.9	43.5			
	Girls	43.1	37.7	40.4	12.58**	4.65*	
	Total	44.9	39.3				

* significant at the .05 level

** significant at the .01 level

*** significant at the .001 level

Table 8. Means and tests of significance for measures of power and group identification, from the Self-Social Symbols Tasks for high and low reading boys and girls.[1]

		Means			F Ratios		
		High	Low	Total	Reading	Sex	Interaction
Power	Boys	17.0	15.8	16.4			
	Girls	14.8	17.5	16.2			10.0**
	Total	15.9	16.7				
Group Identification	Boys	14.7	20.1	17.4			
	Girls	14.7	18.0	16.3	5.4*		
	Total	14.7	19.0				

* significant at .05 level

** significant at .01 level

1. Analyses of identification with particular persons scores are shown in Table 9. No significant effects were found for the measures of social interest, esteem, egocentricity, identification with parents, and complexity.

Table 9. Means and tests of significance for identification measures for boys and girls in relation to reading group.

I. For girls

	N	Means					F Ratios		
		Mo	Fa	T	Fr	Total	Reading	Stim. Person	Interaction
High	12	3.4	4.0	8.1	4.4	19.9			
Low	12	4.1	5.3	5.7	6.3	20.4		6.3***	3.3*(a)
Total		3.7	4.7	6.9	5.3				

II. For boys

High	12	3.0	5.3	7.5	3.3	19.1			
Low	12	3.3	2.4	7.5	4.8	18.0		7.4***	(b)
Total		3.1	3.8	7.5	4.0				

* significant at .05 level
** significant at .01 level
*** significant at .001 level

a. For the girls the significant interaction may be attributed to the high group placing the self relatively further from teacher and closer to mother, father and friend. (Teacher-friend difference, $t = 2.29$, $p = .05$; teacher-mother difference, $t = 2.09$, $p = .05$; teacher-father difference, $t = 2.29$, $p = .05$)

b. Although the interaction is not significant for the boys, the father-mother and father-teacher differences are significantly different for the high and low reading groups. ($t = 2.07$, $p = .05$ for father-mother difference; $t = 2.45$, $p = .05$ for father-friend difference.) The high group is relatively further from father.

Table 10. Correlations for high and low reading boys and girls between frequency of endorsement of self-descriptive adjectives and ratings of the adjectives on a "good-bad" scale. (N = 110 adjectives)

	Low	High	t	p
Boys[1] (12 in each group)	.66	.49	2.59	.02
Girls[1] (12 in each group)	.63	.47	2.34	about .02
Total	.68	.53	2.44	.02

1. For endorsement, high boys vs high girls, r = .68; low boys vs low girls, r = .82. t of the difference = 3.85, p = .001.

Table 11. Means and tests of significance for number of hours in a two-week period spent in various kinds of activity for high and low reading boys and girls.[1]

		Means			F Ratios		
		High	Low	Total	Reading	Sex	Interaction
Reading	Boys	9.9	0.0	4.9			
	Girls	5.0	0.1	2.6	16.55***		
	Total	7.5	0.1	3.8			
TV	Boys	29.2	34.9	31.2			
	Girls	22.0	34.6	28.3	6.00**		
	Total	25.4	34.8				
Homework	Boys	4.7	9.1	6.9			
	Girls	7.3	5.8	6.5			5.94*
	Total	6.0	7.4				
Organized Activity	Boys	6.1	7.6	6.8			
	Girls	9.9	11.1	10.5		4.58*	
	Total	8.0	9.4				
Chores	Boys	.9	1.3	1.0			
	Girls	4.4	2.5	3.5		7.86**	
	Total	2.6	1.9				

* significant at .05 level

** significant at .01 level

*** significant at .001 level

1. No significant effects were found for time spent sleeping or in free play.

Table 12. Means and tests of significance for birth order and level of father's occupation (Hollingshead Scale) for high and low reading boys and girls.

		Means			F Ratios		
		High	Low	Total	Reading	Sex	Interaction
Birth order(a)	Boys	2.0	1.9	2.0			
	Girls	1.3	2.5	1.9	2.80*		2.80*
	Total	1.7	2.2				
Occupation(b) of father	Boys	3.4	4.6	4.0			
	Girls	2.7	3.9	3.3	5.79**		
	Total	3.0	4.3				

* about .10 level of significance

** .05 level of significance

*** .01 level of significance

a. For birth order both trends (reading and sex by reading interaction) may be attributed to the difference between the high and low girls. This difference is significant when tested alone ($t = 2.17$; $p = .05$).

b. Scores are derived from Hollingshead's Occupational Scale. Higher score indicates lower level occupation.

Table 13. Means and tests of significance for differences in quality between library and home reading for boys and girls of high, middle and low socioeconomic class on the basis of father's occupation. (1, 2)

	Boys			Girls		
	N	Mean Difference	t	N	Mean Difference	t
High (1+2)	15	-.21	1.84*	26	+.07	
Middle (3+4)	23	-.11		18	+.07	
Low (5+6+7)	19	-.21	2.10**	21	-.23	2.71***
Total	57	-.19	3.10****	65	-.03	

* significant at .10 level
** significant at .05 level
*** significant at .02 level
**** significant at .01 level

1. A minus difference score indicates that home reading was lower quality than library reading.

2. The following group differences approached significance: (a) total boys vs total girls, t = 2.00**; (b) Hi Girls vs Lo Girls, t = 2.73***; (c) middle girls vs lo girls, t = 2.00**; (d) high boys vs hi girls, t = 2.09**; (e) Lo boys vs hi girls, t = 2.33**; (f) hi boys vs middle girls, t = 1.70*; (g) lo boys vs middle girls, t = 1.85*.